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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/547,663	04/12/2000	EMI TAKABAYASHI	A-355	6241

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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 04/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/547,663	TAKABAYASHI ET AL.
	Examiner	Art Unit
	Audrey Y. Chang	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 February 2002.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on February 20, 2002, which has been entered as paper number 10.
- By this amendment, the applicant has amended claims 1-4, 6-10 and 13-17 and has newly added claim 18.
- Claims 1-18 remain pending in this application.
- The indicated allowability of claims 1-17 is withdrawn in view of the newly discovered reference(s) to Waitts and Cowan. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The phrase "a combined reflection and volume type of single layer or multilayer" recited in claim 1 is confusing and indefinite since it is not clear what are being combined here. It is not clear what is the *layer* or the *multilayer* referred here. This phrase mentions the term "reflection and volume type of single layer or multilayer" however it does not state what is considered here as the reflection and volume type of layer. The scopes of the claims are extremely unclear. Claims 2-7, 14 and 18 inherit the rejection from their based claim.

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The phrases concerning “shadow” recited in the various claims are confusing and indefinite since it is not clear *what are these* and how do they relate to the recited subject image and the color pattern of plane images. The scopes of the claims therefore are unclear.

Claims 8-13 are rejected under 35 U.S.C. 112, second paragraph, *as being incomplete for omitting essential steps*, such omission amounting to a gap between the steps. See MPEP § 2172.01. Claim 8 recites a **process** of fabricating a color hologram display however the claim basically does not recite any process steps for recording the hologram images. Claims 9-13 inherit the rejection from their based claim.

Claim 10 is confusing and indefinite since it is not clear how could the photosensitive material used to record the hologram images by using the hologram plate is also used to make the hologram plate. The term “hologram plate” recited in claim 10 is indefinite since it is not clear what is its antecedent basis from its based claim. There are two different hologram plates recited in the based claim.

Claims 15 and 16 are confusing and indefinite since it is not clear what is being claimed here. The phrase “*a subject hologram plate* to fabricate a color hologram display, wherein a *subject hologram plate* ... and a character hologram plate” recited in claims 15 and 16 is indefinite since it is not clear how could the hologram plate comprises itself and another hologram plate. The scopes of the claims are extremely unclear.

The applicant is respectfully reminded to clear out **all** the discrepancies of the claims to make the claims in comply with the requirements of 35 USC 112, first and second paragraphs.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Waitts (PN. 5,956,164).

Waitts teaches a *graphical material*, serves as the holographic display, that is comprised of a *holographic area* (312, Figure 4) for reconstructing a three-dimensional object (such as 18, 20 and 22) and *diffraction grating area* (326, Figure 4) for reconstructing two-dimensional color pattern such as logo or trademark. The holographic area and the diffraction grating area are superimposed to each other, (please see Figure 4). Both the hologram and the diffraction grating are reconstructably recorded such that they each are reconstructed to display hologram image of the 3D object or the 2D color image such as rainbow effect. Waitts teaches that the hologram is a visible light hologram, which means the recorded hologram is considered to be colored. The features concerning “reflection and volume type” cannot be addressed here since the features are not well defined and are rejected under 35 USC 112, second paragraph.

With regard to claims 2-3, this reference does not teach explicitly that the color pattern of the 2D diffraction grating is monochrome and made of color green. However such modification is considered to be an obvious matter of design choice to one skilled in the art since it involves merely changing the color or wavelength of the recording light source for the purpose to create desired color effect.

5. Claims 4-7, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Waitts as applied to claims 1-3 above, and further in view of the patent issued to Cowan (PN. 4,888,260) above .

The graphic material including holographic area and diffraction grating area taught by Waitts as described for claims 1-3 above has met all the limitations of the claims. This reference however does not

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teach explicitly about the shadow pattern. These features are rejected under 35 USC 112, second paragraph, above because of their indefiniteness. It can only be vaguely examined here.

Cowan teaches a method for making volume phase reflection hologram by using master hologram to reconstruct the object light for recording the reflection hologram wherein the noise light occurs at the interfaces may be used to record noise or shadow hologram. It would have been obvious to one skilled in the art to apply the recording process of Cowan to make the graphical material of Waitts for the purpose of providing the option to record shadow images. The manner concerning the positions of the shadow image is considered to be obvious matters of design choices to one skilled in the art.

6. Claims 8-13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Waitts in view of the patent issued to Cowan.

Waitts teaches a *graphical material* that is comprised of *holographic area* (312, Figure 4) for reconstructing three-dimensional object (such as 18, 20 and 22) and *diffraction grating area* (326, Figure 4) for reconstructing two-dimensional color pattern such as logo or trademark. The holographic area and the diffraction grating area are superimposed to each other, (please see Figure 4). Both the hologram and the diffraction grating are reconstructably recorded such that they each are reconstructed to display hologram image of the 3D object or the 2D logo or trademark. Waitts teaches that the hologram is visible light hologram, which means it is colored. The 2D logo image recorded within the diffraction grating also has color pattern such as rainbow. This reference has met all the limitations of the claim with the exception that it does not teach explicitly that the diffraction grating is recorded as a hologram within a photosensitive material. However recording diffraction grating holographically is a standard process in the art such modification is therefore considered to be obvious to one skilled in the art for the purpose of providing an alternative way to record the diffraction grating.

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With regard to the features concerning using hologram plate to record the graphical material, the practice of recording a master hologram or hologram plate and using reconstructing the master hologram to create the object beam for recording a hologram is pretty standard process in the art and known in the art as two-step process. This is demonstrated by the teachings of Cowan. Cowan teaches to record a *reflection type master hologram* by placing the object (100, Figure 9) at the opposite side of the recording medium (115). The reference light (120) reflected off the object is interfered with the incident reference beam to create interference fringe patterns therefore hologram within the recording medium. The master hologram (150) is then placed at the backside of the recording plate (190, Figure 13) to be reconstructed by using incident reference light beam to create the object beam to interfere with the reference beam to record the hologram within the recording plate. It would then have been obvious to one skilled in the art to apply the teachings of Cowan to use the two-step method for creating hologram plates and then reconstructing the hologram plate for recording both the holographic area and the diffraction area for the benefit of providing an alternative and standard process to create the graphic materials. The features concerning the different manners of using these holographic plates or master holograms are considered to be obvious matters of design choices to one skilled in the art since the specification fails to teach the criticality of having these particular arrangements would overcome any problem in the prior art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
April 24, 2002

